

# Outloop: Ping Pong

## Basic design Document

### Overview

#### Elevator Pitch

A small game where you can play ping pong against human and AI players of varying difficulty to gain experience and levels which award you with cosmetics, upgrades and techniques.

#### Target Audience

Casual to competitive players who enjoy improving themselves in a fun, simple and addictive gameplay loop.

#### Reference Examples

- Wii Sports Resort
- Mario & Sonic at the Olympic Games
- Rockstar Games Presents Table Tennis

# Game Concepts

## Narrative concept

Your character is a local around the neighborhood where the playground of the ping pong table takes place. There are all sorts of things to do in this playground, but you and a bunch of your neighbors decide to dedicate themselves to playing ping pong against each other to see who of you can become the best ping pong player around.

## Characters

- You (The player) Can create a character with small variative options of cosmetics and traits.
- Opponents may form themselves as similar looking characters that are differently customized in looks. They will have names and can be a constant within not just this game, but also other games that will take place in the same playground. Opponents may also be unique in difficulty where “Matt” might be a beginner opponent, and “Elisa” might be the champion of the neighborhood when it comes to Ping-Pong

## World Building

The game takes place in a playground in the neighborhood. Multiple different activities can be played there and could potentially become their own installments (or even 1 cohesive game 1 day 🎮)

# Game Functionality

## Core Pillars

- **Responsiveness:** Gameplay feels fast, reactive and fair.
- **Personality through customization:** Cosmetic rewards reinforce identity.
- **Scalability:** Systems must support modular expansion.
- **Couch-first gameplay:** Always playable with 1 keyboard or 2 controllers.

## Technical Details

### Basic Game Rules

Basic rules of Ping Pong:

- Player gains a point by making the opponent make an invalid move which includes:
  - Having the ball bounce twice on his/her side of the table
  - Have the ball not touch the other side of the table after his/her move (out)
  - Fail to make the ball go over the net when serving
- Upon serving, the ball may not touch the net of the table. Upon this happening the player serving, must serve again.
- Serving changes every 2 or 5 points (depending of what is agreed upon).

### Win Condition

In order to win in Ping Pong, a player must acquire an agreed upon number of points and sets. Traditional for agreed upon points/sets are:

- 1 to 5 sets(1 set, best 2 out of 3, or best 3 out of 5)
- 5, 11 or 21 points per set

When both players are at a “set/match point” (player achieving a set upon achieving next point), the players will come to a “deuce” where in order to win, the player must achieve a difference of 2 points between him/her and the opponent to claim the set/match.

Upon deuce, points will keep being counted above the exceeding agreed points per set until the set/match is taken.

### Basic Move set & Racket Handling

For the basic move set of ping pong, the player has the capability of:

- Moving around his/her side of the field around the table.
- Serving the ball
- Hitting the ball to make the ball go to the other side of the table.

- The Player can slightly control horizontal direction of the ball

## Level System

Upon concluding a game, the player gains XP to which the player may level up. From leveling up, the player can obtain:

- New cosmetic items to customize the player further. Including:
  - Shirts
  - (Short) Pants
  - Shoes
  - Ping Pong bats
- New techniques to which the player can use to play more tactically (more on this in its own Technical Details section)

## Techniques

Techniques vary between actual real-life techniques used in professional ping pong and fictional moves that wouldn't be very feasible in real-life but would make the gameplay more interesting. A few techniques could be:

- Smash in various intensity levels
- Topspin in various intensity levels
- Backspin in various intensity levels

Initially on level 1, the player has no special techniques at all and only has the basic move set. The player can however earn techniques to be more strategic/tactical about their approach in the game.

## User Interfaces

The following interfaces need to be included in the game:

- An interface/menu where a mode can be chosen. Modes can be:
  - Player versus AI
    - Single Match (MVP)
    - Tournament Mode
  - Player versus Player (MVP)
    - Local (MVP)
    - Online
- An interface to select a made or pre-made character.
  - It also needs to have an option to create a character
- An interface where a character needs to be created. (Adapted from framework)
- An interface where rules for a game can be customized

## Visual & Feedback Design

Element	Purpose
<b>Ball Trail</b>	Communicates spin and direction
<b>UI Popups</b>	Score gain, errors, match points, deuce, etc.
<b>Controller Rumble</b>	Feedback when a ball hits a racket
<b>Sound Cues</b>	Whiff, bounce, smash sound variants

## Modular Pattern Thinking

To already be thinking technically on how to approach certain challenges that the design choices and implementations that are sketched in this GDD, we will start considering how to integrate design patterns for certain features and why.

Feature/Need	Pattern Suggestion	Why
<b>Ball Physics / Trajectories</b>	<b>Strategy Pattern</b>	Each move (topspin, smash, lob) can be its own strategy.
<b>Game Rule Engine</b>	<b>State / Strategy Pattern</b>	Makes it easy to support different rule sets.
<b>Player Input + Control</b>	<b>Command Pattern</b>	Useful for input abstraction and replays.
<b>Customization &amp; unlocks</b>	<b>Decorator or Builder</b>	Modular addition of outfits/skills

## Minimum Viable Product:

For the scope of the very first build of the game, we will focus on building the core gameplay experience of the game first. After which we will slowly expand the game with other features mentioned in the GDD. For now, the MVP will focus on including the following:

- A scene with a simple interface where you can choose between:
  - Play against AI in a simple game of 1 set/5 points, serve change every 2 points.
  - Play against player in a simple game of 1 set/5 points, serve change every 2 points.
- A scene where the game will be played with just the basic move set for both players.
- A simple interface that keeps the score of the game.
- 2 simple characters (red and blue mannequins(or rectangles) holding ping pong bats)
- An outdoor Ping Pong Table

We must however keep the other features we mentioned in mind when designing and creating the MVP in terms of scalability.